

**REMARKS**

Claims 1 and 7 are cancelled.

Claims 2 - 5 and 8 are amended so as to depend from amended Claim 6.

Claims 6, 9, and 15 are amended.

Claim 16 is new.

Support for the Claim 3 limitation "poly-N-acetylglucosamine-glucosamine" is found, for example, at page 3, paragraph 6 of the instant specification as filed. No new matter is added.

Support for the Claims 6, 9 and 15 limitation "at least about 0,15" is found, for example, at page 13, paragraphs 2-4 of the instant specification as filed. No new matter is added.

Support for the Claims 6, 9 and 15 limitation "a molecular weight in the range of about 20 kDa to about 80 kDa" is found, for example, at page 4, paragraph 2 of the instant specification as filed. No new matter is added.

Support for the Claims 10 and 16 limitation "Trichomas" is found, for example, at Table 1, page 7 of the instant specification as filed. No new matter is added.

Support for the Claim 16 limitation "about 2.5 to 5 grams/ml" is found, for example, at Table 1, pp. 6-7 of the instant specification as filed. No new matter is added.

Previously presented claims 10-14 and amended claims 2-6; 8-9; and 15 are presented for continued examination.

***Claim Objections***

Claims 2 and 3 stand objected to as containing misspellings of the terms “chitin” and “N-acetylglucosamine.” Appropriate correction is made herewith. No new matter is added.

***Claim Rejection – 35 U.S.C. §102***

Claims 1-5 stand rejected under 35 U.S.C. §102(a) as being anticipated by Nelson (5,015,632). It is the Examiner’s position that “Nelson teaches a chitosan pyrithione salt which is useful as an antimicrobial agent in soaps, shampoos, and skin-care medicaments... The molecular weight is between 150,000 - 600,000.” (11/30/07 Office Action at pp. 2-3).

Applicants respectfully traverse this rejection. In light of the cancellation of claim 1 and the amendments of claims 2-5 so as to depend from claim 6, Applicants respectfully suggest that Nelson does not include all claimed elements of the aforementioned claims, particularly the limitations of (1) “a molecular weight in the range of about 15 kDa to about 80 kDa” and (2) that “x is at least about 0.15.” Withdrawal of this grounds for rejection is respectfully requested.

***Claim Rejections – 35 U.S.C. §103*****Claims 8-14 in view of Nelson**

Claims 8-14 stand rejected under 35 U.S.C. 103 in view of Nelson. In light of the revision of claims 6 and 9 (from which claims 8-14 depend, directly or indirectly) discussed above, Applicants respectfully suggest that Nelson does not include all claimed elements of the aforementioned claims. Withdrawal of this grounds for rejection is respectfully requested.

**Claims 6-7 and 15 in view of Nelson, Platt, and Yaku**

Claims 6-7 and 15 stand rejected under 35 U.S.C. 103 in view of Nelson in view of Platt and Yaku. In light of the revision of claims 6 and 9, applicants respectfully suggest that none of

these references, alone or in proper combination, teach or suggest all elements of revised claims 6 and 9. Withdrawal of this grounds for rejection is respectfully requested.

First, as discussed above Nelson does not disclose the limitation limitations of (1) "a molecular weight in the range of about 15 kDa to about 80 kDa." The Examiner correctly notes that the molecular weight range of the chitosan-pyrrithione compound disclosed by Nelson is in the molecular weight range of "between 150,000 - 600,000." (11/30/07 Office Action, page 3). The 11/30/07 Office Action further asserts that Yaku et. al "teach that glucosamine oligosaccharides prepared by reducing the molecular weight of chitosan has antibacterial properties and low toxicity. The skilled artisan could then have combined the teachings and would have been able to predict that the resulting composition would be antibacterial and antifungal, and useful for treating dermatological conditions." (11/30/07 Office Action, page 5),

Applicants respectfully submit that this contention is without merit. When considered in light of the entirety of its disclosure, Yaku in fact teaches away from the use of chitosan above 10 kD. Specifically, column 1, lines 59-63 of Yaku teaches that "the low-molecular chitosan prepared by this method has a molecular weight of about 10,000 at the lowest and therefore cannot be dissolved in neutral water." Based on this teaching away, one of ordinary skill in the art would not be motivated to lower the molecular weight of the instant composition to the claimed molecular weight range of the instant invention, and thus would not be motivated to combine the teachings of Nelson with the teachings of Platt (which discloses a chitosan molecular weight range of 4 kD - 18 kD, preferably 4- 7 kD.) Withdrawal of this grounds for rejection is respectfully requested.

Second, Nelson does not disclose the use of a chitosan material that is more than approximately 10% acetylated. See column 3, lines 16-19; "The chitosan reactant was

determined to be 89.3% deacetylated, as measured by UV spectrophotometry, and contained negligible amounts of sulfur.” Thus, Nelson does not disclose the increased acetylation of the instant invention. In light of the fact that neither Yaku nor Platt are properly combinable with Nelson, Applicants respectfully submit that the 11/30/07 Office Action does not provide a combination of properly combinable references that teach both the molecular weight range of 20 - 80 kD and the level of acetylation of the instant invention. In further consideration of the greatly increased anti-fungal and anti-bacterial effects of the instant invention (*compare* minimum inhibitory concentration (MIC) data in Nelson (table 1) with instant table 1), Applicants respectfully request withdrawal of this grounds for rejection.

**CONCLUSION**

New claim 16; previously presented claims 11-14 and amended claims 2-6; 8-10; and 15 are presented for continued examination. Early and favorable consideration on the merits is earnestly solicited. If any additional fee is due, the amount of such fee may be charged to Deposit Account No. 50-1561.

Respectfully submitted,  
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